WHAT IS CLAIMED:

1. A method of enlarging an image field of a camera by combining partial images, the method comprising:

continuously rotating at least two refractive prisms to form a cycloidal scan pattern, the cycloidal scan pattern comprising points of reversal of scan movement that corresponds to a number of vertexes of the cycloidal scan pattern and to a number of partial images.

2. The method according to claim 1, wherein the cycloidal pattern is an astroid pattern with a plurality of vertexes.

3. The method according to claim 1, wherein the camera is a focal plane array camera.

4. The method according to claim 1, wherein the image field comprises N pixels and the partial images comprise n pixels.

5. The method according to claim 2, wherein the reversal of movement at the vertexes of the astroid pattern reduces unsharpness to less than a size of a pixel during a recording time of an individual image.

6. The method according to claim 1, wherein the point of reversal occurs substantially in a midpoint of a recording time of the individual images.

7. The method according to claim 1, further comprising:

producing four partial images using the astroid pattern; and

combining the four partial images.

8. The method according to claim 4, wherein the combined partial images overlap.

9. The method according to claim 4, further comprising:

projecting at least one alignment mark in to a region of overlap of the individual images;

measuring a shift between partial images by an image processor; and

assembling the partial images based on the measured shift to form a combined image.

10. The method according to claim 9, comprising:

limiting the projection of the at least one alignment mark to a few scanning cycles.

11. The method according to claim 9, wherein the projection of the at least one alignment mark is permanent.

12. The method according to claim 9, wherein the at least one alignment mark is projected into an edge region of the combined image.

13. A method of enlarging an image field of a camera by combining partial images, the method comprising:

continuously rotating at least two refractive prisms such that an optical axis of the at least two prisms scans in a cycloidal pattern; and

capturing a plurality of partial images; and

assembling the plurality of partial images to form a combined image,

wherein the cycloidal pattern is a astroid pattern with a plurality of vertexes.

14. The method according to claim 13, wherein a number of the vertexes of the astroid pattern corresponds to points of reversal of the optical axis scan movement and corresponds to a number of partial images that are combined.

15. The method according to claim 14, wherein the reversal of movement at the vertexes of the astroid pattern reduces unsharpness to less than a size of a pixel during a recording time of an image.

16. The method according to claim 14, further comprising:

setting a recording time of the partial images such that the points of reversal are substantially in a midpoint of the recording time.

17. The method according to claim 14, wherein four partial images are combined using the astroid pattern which has four vertexes.

18. An apparatus for enlarging an image field of a camera by combining partial images, the apparatus comprising:

a first optical element configured to rotate about an axis;

a second optical element configured to rotate about the axis; and

a camera that captures a plurality of partial images,

wherein the first optical element and second optical element form an optical axis that follows a cycloidal pattern.

19. The apparatus according to claim 18 further comprising:

an aligner that projects alignment marks.

20. The apparatus according to claim 18 wherein the cycloidal pattern is in the form of an astroid pattern.

21. The apparatus according to claim 20 wherein the astroid pattern has a plurality of vertexes.

22. The apparatus according to claim 19 further comprising:

an image processor that determines the position of the projected alignment marks.

23. The apparatus according to claim 18 wherein the camera captures each of the plurality of partial images during a time that a center of the optical axis is at the vertex of the pattern.